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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/756,078

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Shinya Watanabe

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LUCAS & MERCANTI, LLP
475 PARK AVENUE SOUTH
15TH FLOOR
NEW YORK, NY 10016

EXAMINER

MARTINEZ, CARLOS A

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/756,078

Applicant(s)

WATANABE, SHINYA

Examiner

Carlos A. Martinez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/29/04 & 6/15/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 119(e), a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition

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must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless

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the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The abstract of the disclosure is objected to because it includes improper language such as "is disclosed". Correction is required. See MPEP § 608.01(b). Further, abstract is not consistent with what is disclosed in specifications or there are errors in the lines 7-9, when referring to "(C-B)".
5. The disclosure is objected to because of the following informalities: In the summary of invention, "form" should be "forming" (refer to pg. 6, line 10). Further, reference is made to "step (a)" (refer to pg. 7, line 2); however, there is no previous mention of a "step (a)".

Appropriate correction is required.

6. The use of the trademark ANTI-TERRA, DISPERBYK, BYKUMEN, etc., has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969) and applicant's acknowledged prior art (noted henceforth as A.A.P.A.).

- Wen discloses a method to form an image (refer to Fig. 2) with the ejection of actinic radiation curable ink deposited from an ink jet recording head (refer to column 4, lines 60-63), the exposing of the ink on the medium with actinic radiation to cure the ink (refer to column 4, lines 63- 67).
- Wen discloses that a number of actinic/UV curable ink can be used that are suitable for ink jet printing (refer to column 4, lines 40-54); however, Wen fails to disclose the surface tension of the curable inks.
- Chieng teaches a range of surface tension for curable inks of 30-50 dynes/cm – equivalent to 30-50 mN/m – (refer to column 6, lines 15-17) that can be applied to a recording medium such as plastics (refer to column 5, lines 2-12), which may have a surface tension of 35 to 60 mN/m, as noted by the applicant.
- Therefore, it would have been obvious to one having skill in the art at the time of the invention was made to, along with the method of Wen, use a combination of curable inks and recording mediums, as taught by Chieng and A.A.P.A., so that

the absolute value of the difference between the medium and the curable ink surface tension is within the range of 0 to 20 mN/m for the purposes of image quality.

Further, with respect to claim 2, it would have been obvious to one having skill in the art at the time of the invention was made to eject a second different color of actinic radiation curable ink (refer to element 230 of Fig. 2; column 2, lines 36-41), expose the second ink to actinic/UV radiation (refer to column 5, lines 9-11), as noted also in Wen, and use a combination of curable inks and recording mediums, as taught by Chieng, so that the absolute value of the difference between the medium and the curable ink surface tension is within the range of 0 to 20 mN/m for the purposes of image quality.

Further, with respect to claim 9 and 10, it would have been obvious to one having skill in the art at the time of the invention was made to modify the method of Wen to include a recording medium composed of non-absorbing material, such as a plastic film, as taught by Cheing, for the purpose of using a medium that actinic radiation printing is noted for use in.

9. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969), as applied to claim 1 above, and further in view of Nair (US6466730). Wen, as modified by Chieng, lacks the disclosing that the ink surface tension does not substantially vary after exposing 50 percent of radiation energy required to cure the ink; however, Nair discloses that after exposing the curable ink to radiation energy, for

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curing, that the surface tension does not substantially vary (refer to Table I and column 9, lines 14-26). Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Wen, as modified by Chieng, to expose the curable ink with only 50 percent of radiation energy to where the curable ink does not substantially vary, as taught by Nair, for the purpose of curing the ink with only the necessary energy in order to conserve or not waste energy.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969), as applied to claim 1 above, and further in view of Nair (US6466730). Wen, as modified by Chieng, discloses the employing of a plurality of inks having different colors but lacks the disclosing that – before and after exposing to actinic radiation – the maximum difference in surface tension among the inks is at most 10 mN/m; however, Nair discloses that before and after exposing the curable ink to radiation energy the surface tension is within 10 mN/m (refer to Table I and column 8, lines 19-25). Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Wen, as modified by Chieng, to have the maximum difference in surface tension among the inks, before and after exposing, to be at most 10 mN/m, as disclosed by Nair, for the purposes of image quality.

11. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969), as applied to claim 1 above, and further in view of Nair (US6466730). Wen, as modified by Chieng, lacks the disclosing that the ink surface tension before exposing to actinic radiation is less than or equal to the surface tension of the ink after exposing to actinic radiation; however, Nair discloses that the ink surface tension before

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exposing to actinic radiation is less than or equal to the surface tension of the ink after exposing to actinic radiation (refer to Table I). Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Wen, as modified by Chieng, to know that the ink surface tension before exposing to actinic radiation is less than or equal to the surface tension of the ink after exposing to actinic radiation, as disclosed by Nair, for the purposes of image quality.

12. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969), as applied to claim 1 above, and further in view of Nair (US6466730). Wen, as modified by Chieng, lacks the disclosing that the ink surface tension by exposing to actinic radiation is in the range of 30 to 50 mN/m; however, Nair discloses that the ink surface tension after exposure is within the range of 30 to 50 mN/m (refer to Table I). Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Wen, as modified by Chieng, to know that the ink surface tension after exposure to actinic radiation could be in the range of 30 to 50 mN/m, as disclosed by Nair, for the purposes of image quality.

13. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wen (US6092890) in view of Chieng (US4978969), as applied to claim 1 above, and further in view of Nakajima (US2004/0050292). Wen, as modified by Chieng, lacks the disclosing that the ink on the recording medium is exposed to an actinic radiation with the maximum illumination intensity of 0.1 to 50 mW/cm²; however, Nakajima discloses that the ink on the recording medium can be exposed to an actinic radiation with the maximum illumination intensity of 0.1 to 50 mW/cm² (refer to pg. 29, column 2, line 3). Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Wen, as modified by Chieng, to use a maximum

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illumination intensity of 0.1 to 50 mW/cm², as disclosed by Nakajima, for the purpose of proper exposure for the given inks utilized.

Pertinent Art References

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Appropriate prior art, which is nearest to the subject matter defined in the claims, is listed in the Notice of References Cited. These prior art references, such as Ylitalo (US6730714B2), Takabayashi (US2004/0052967), Ylitalo (US6720042), Codos (US6726317B2), and Nishikawa (US2004/0201660) are included because they pertain to printing with actinic/UV radiation or subject matter/elements pertinent to actinic/UV radiation printing similar to those defined in the claims of the applicant.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos A. Martinez whose telephone number is (571) 272-8349. The examiner can normally be reached on 8:30 am - 5:00 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CAM
01/04/2005


HAI PHAM
PRIMARY EXAMINER